

haviour, in each case examining with care the complex of factors involved and the validity and usefulness of the statements that can be made on the evidence available. Although an introductory treatment of concepts of learning and instinct is rather perfunctory, the author returns to such central problems of behaviour in the latter half of the book where, as might be expected, learning theory features prominently. The concept of drive also receives attention and an account is given of the relevant experimental work on brain function.

In any such book each individual reader will doubtless feel that certain concepts or areas of knowledge have been unjustifiably omitted or received too summary a treatment. In fact, Barnett covers far more ground than the above outline might suggest. Thus his own work on wild rats places him in a unique position to consider the species' total behaviour and its biological significance, and he underlines the instructive differences between the wild form and the laboratory strains so widely employed in behaviour studies. Paradoxically, however, the sections that deal with the "natural" behaviour of rats are rather thin in places and the animal's social behaviour deserves a more rigorous analysis here. Although information is drawn from species other than the rat, this approach might have profited by extension and, a more serious criticism, endocrinological aspects certainly warrant fuller consideration than they receive.

"Stereotyped" is perhaps not the most suitable term for activities designated "innate" by other writers, and the description of some social patterns as "amicable" is questionable, but these and other examples are minor faults in a text in which, on the whole, the author chooses and defines his words with great care. The fact that, throughout the book, the keynote is caution and only limited conclusions are drawn should occasion no surprise (and indeed constitute firm commendation) to workers familiar with recent trends in ethology. *A Study in Behaviour* is certainly recommended reading for students of animal and human behaviour, for anyone whose work involves mammals and, not least by any means, for those who might feel that we know most of what there is to know

about the behaviour of this overworked member of our scientific departments.

G. H. MANLEY

DEAFNESS

Rainer, John D. et al. (Editors). *Family and Mental Health Problems in a Deaf Population*. New York, 1963. Columbia University: New York State Psychiatric Institute. Pp. xxvi + 260. Distributed on request to interested agencies and individuals; mailing charge \$1.00.

THE INVESTIGATION HERE reported was carried out in the Department of Medical Genetics of the New York State Psychiatric Institute, under the direction of Professor Kallman, by a large team of psychiatrists, geneticists, demographers and sociologists. They had the co-operation of federal, state and local agencies concerned with the welfare and vocational rehabilitation of deaf people. Enormous difficulties of communication and assessment were overcome and the result is a singularly absorbing and illuminating study. It will be of particular interest to eugenicists, because of the genetic and demographic details presented, and because of the light it throws on how the communication difficulties of the deaf influence their family patterns and encourage intermarriage so that their progeny tend to be deaf also.

The investigation was concerned with two main groups—the literate totally deaf population of the State of New York, (some 10,000 individuals), and all literate deaf twins in the Eastern half of the United States. Smaller groups such as the deaf patients in mental hospitals, deaf delinquents, and deaf persons of outstanding achievement were included in subsidiary studies also reported here.

In a random sample of the New York State literate deaf who were specially interviewed, patterns of courtship, sexual maturation, attitudes regarding marriage and parenthood, planning of family size, and many other aspects of their life and work were inquired into.

The frequency of early total deafness in the population of New York State is .06 per cent at present. Factors maintaining the size of this population are the present marriage and fertility rates of the women (now little below that of hearing women), a trend towards bigger families when there is at least one deaf child, and assort-

ative mating. In the sample studied only 5 per cent of the women born deaf and less than 10 per cent of those that became deaf at an early age had married hearing men, the vast majority having wedded men deaf since birth or early childhood. In 30 per cent of the marriages both partners had been born deaf, and 14 to 21 per cent of marriages in which one partner only was born deaf resulted in deaf children. From their figures, Rainer and Deming who contribute the chapter on fertility conclude that nearly 10 per cent of all children born to deaf subjects are themselves deaf. These in turn marry and contribute to the occurrence of deafness in the next generation.

In the families of the deaf, there was indifference and ignorance about the workings of heredity; genetic considerations did not influence the choice of mate or the decisions to have children. A deaf person brought up among others similarly afflicted appears to make a comfortable adjustment to his deafness and not to care one way or the other about the hearing status of his children. Among the children of deaf parents, those who were deaf presented fewer problems of control and behaviour than those who could hear.

The genetic investigation of persons who had become deaf from birth or very early in life showed that recessive transmission is very frequent and important; many different genes are responsible. Inherited autosomal dominant genes account for about 10 per cent of all deafness: another 50 per cent is sporadic arising from exogenous causes, complicated modes of inheritance, or new mutations; the rest are mainly of autosomal recessive origin.

The authors consider fully the need for a comprehensive mental health programme and better general sex education for the deaf; they are, however, surprisingly silent about genetic counselling, presumably because there is at present so little evidence of a demand for such help. They look forward hopefully to advances in understanding the mode of inheritance of certain chromosome-determined biochemical deficiencies which will have been discovered to cause deafness; this may lead to replacement therapy being instituted before hearing loss has occurred.

HILDA LEWIS

FERTILITY

Nag, Moni. *Factors Affecting Human Fertility in Non-Industrial Societies.* New Haven 1962. Yale University publications in Anthropology, No. 66. Pp. 227. Price \$2.50.

THIS MONOGRAPH REPRESENTS a great deal of painstaking statistical work on a mass of most interesting accumulated information presented in the form of a cross-cultural analysis, using a two point scale, of the fertility data from sixty-one non-industrial societies—twenty from Africa, sixteen from America, thirteen from Asia and twelve from the Pacific. The societies included in the study could not be selected randomly, because the data that was wanted by the author was only complete enough for a very limited number of societies—and it was on the basis of the availability of data from which fertility levels could be determined that the selection was made.

Eight somewhat primitive and isolated communities are considered in detail including their sexual habits and taboos, their attitude to fertility and family size, and their desire to control or enhance fertility, their approval or disapproval of abortion and so forth.

The author then goes on to discuss the various factors that emerge from a study of all the sixty-one societies which may have a possible bearing on fertility levels. These are related 1. to the probability of coitus as affected by natural frequency, voluntary and involuntary abstinence, age at marriage, polygamy and the loss of sexual partner; 2. to the probability of conception dependent on fecundity which in turn is limited by the natural reproductive span, altered or damaged by nutritional levels, certain diseases and psychological factors—and of course controlled to some extent by various contraceptive measures (nearly always withdrawal); and 3. the influence, if any, of abortion, stillbirth and infant mortality.

The author concludes that of all these factors probably venereal disease has the most marked effect on fertility levels. He also points out that the study brings more light to bear on the problems of depopulation than on those of over populations. There is a good bibliography and eighty detailed tables.

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